APEX™
Stainless Steel, Condensing, Gas-Fired Commercial Boiler

97% EFFICIENT

- Next Generation Watertube Technology
  - Improved Efficiency, up to 97%
  - Up to 50% Smaller Pumps
  - Reduced Electrical Consumption
  - Increased Venting Lengths
  - Unique to Thermal Solutions

- Concert Boiler Control, Advanced Touch Screen Display

- 5-to-1 Modulation Turndown

- Stackable; Eliminates Costly Stands

- Eco Propel Variable Speed Pumping

THERMAL SOLUTIONS
Innovative Equipment for Hot Water Systems

ULC, Intertek, ASME, AHRI CERTIFIED
www.thermal-solutions.com
Founded & grounded in the boiler business, Thermal Solutions believes product longevity is paramount. In the drive for increased efficiency, some have placed a premium on smaller pump requirements consuming less electricity and piping arrangements over time-proven designs worthy of being designated a boiler. We believe you deserve both. Thermal Solutions all new Apex Commercial Condensing Boiler ensures the highest boiler appliance efficiency, economical electrical usage, and long lasting design for reliable performance year after year. It starts with our unique heat exchanger with characteristics you won’t find anywhere else.

Unparalleled Efficiency & Longevity
Next generation watertube technology with internal condensing chamber induces more latent heat to be captured in tubes. Additional heat is transferred into the water to be used in the system instead of going up the vent as wasted heat. Flue gas temperatures decrease by 54°F at high fire, and harmful emissions are reduced maximizing our GREEN footprint.

<table>
<thead>
<tr>
<th>Boiler Model</th>
<th>Pump HP</th>
<th>Amp Draw</th>
<th>Watts</th>
<th>Yearly Operation (US-$)</th>
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</thead>
<tbody>
<tr>
<td>Apex 625</td>
<td>1/6</td>
<td>1.9</td>
<td>218.5</td>
<td>$89.26</td>
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<td>Brand “A”</td>
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<td>4.9</td>
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<td>$230.19</td>
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</table>

ANNUAL SAVINGS OF $140.93 OVER COMPETING BRAND*

*Based on AHRI runtime of 2,500 hours and 16.34¢ per KW/hr.

Unique to Thermal Solutions, refined waterways reduce circulator pump sizes by 30–50%. The diminutive pump uses half the electricity, keeping 50% of operating cost in your pocket every year...

Flex & Move or Fight “Mother Nature”
Objects expand and contract as they heat up and cool. Our spiral flex tubes mimic and move with this natural occurring motion ensuring long lasting reliability and performance. Other designs directly expose flat tube sheets and require welds to hold back against this phenomenon, causing stress on material and welds.

Electrical Savings & Eco Propel
OR take your system to the next level with optional Eco Propel Variable Speed Cognitive Pump Technology. Varying boiler flow rates to match system load changes improves overall energy savings, reducing fuel consumption by up to 3%. The bottom line is that Eco Propel’s advanced technology can pay for itself in less than one year!

Harmonizing Condensing Control
Specifically designed for condensing boilers, innovative logic reduces water temperature and minimizes firing rates. Benefit...the Concert Control actually prolongs condensing periods and reduces cycling, maximizing performance and boosting overall system efficiency. We didn’t stop with enriching condensing performance; seamless EMS integration, touch screen navigation with intuitive icons, and USB data sharing port make the control the most flexible and feature-packed boiler control available anywhere.
Intuitive Icon Navigation – “Touch” and move through our control menus effortlessly. Whether it be commissioning the boiler with the “Quick Setup” menu, pinpointing fault codes with corrective actions in seconds or seamlessly connecting to an EMS. Extensive data archives with graphical displays are available to evaluate boiler performance and make value-added adjustments to maximize boiler & system efficiency.

Self-Guiding Diagnostics – Troubleshooting boiler issues has never been this easy! The industry-leading fault identification and correction feature allows the service technician to quickly drill down on the issue, with cause and corrective measures.

Unmatched Archives – With the largest collection of stored operational data (4 months), no stone is left unturned when it comes to evaluating a boiler’s performance and pinpointing adjustment for improvement. The boiler’s onboard energy management system is a true step above all others!

Flexible Venting Configurations
- Venting up to 100 equivalent feet (Models 425C & 525C)
- Venting up to 200 equivalent feet (Models 625C thru 825C)
- Direct air intake venting up to 100 equivalent feet; Optional room air capability
- Optional Ipex Low Profile Sidewall Termination Kit with reduced vent/air intake connections for up to 50 equivalent feet max.

USB Data Sharing – Make room on the tool belt for a flash drive as the USB data sharing port has become another important device to have in commissioning (upload/download settings from one boiler to the next), servicing (download data and email file to factory for assistance) and analyzing boiler operation (historical info can be downloaded & saved in .CRV formatted files).

Peer-To-Peer Boiler Sequencing – Unique control logic uses both temperature and firing rate of the connected boilers to sequence up to eight units in unison to optimize system efficiency. Included dual RJ45 connections make peer-to-peer and/or simultaneous EMS communications (ModBus Standard / Other Protocols Optional) a snap without the need of a separate splitter.

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Simplified Wiring and Serviceability
Low and high voltage fused printed circuit boards (PCB) simplifies wiring, enhances serviceability & troubleshooting with easy to read labeling, and provides electrical protection (spare fuses located on PCB for quick replacement). Other connections include: 120/1/60 voltage and pumps (boiler, system & domestic hot water); alarm; auto & manual reset external limits; enable/disable; DHW demand; 4-20mA remote; sensors (outdoor, remote and DHW); EnviraCOM thermostat; low water cutoff; and flow switch.

3-in-1 Vent Connection
- Accepts CPVC, Polypropylene or Stainless Steel without the need of an external adapter.
- Built-in combustion analyzer test port with cap for convenience and avoids holes in vent pipe, causing leakage if not sealed properly.

Harmonizing Boilers with Systems
Optional control panel integrates all makes of boilers (water or steam) for seamless, single-point connection with EMS. Improves efficiency and operation of condensing, non-condensing, hybrid or steam systems up to 8 units. “Smart Ops” select boiler type (condensing or non-condensing) based on load requirements and inputs of boilers of any size. Selectable Unison and/or Sequential modulation with baseload ensures peak efficiency and maximum run time for all types of boiler technologies.

Visit www.ThermalSolutions.com to find out more!
Apex Standard Equipment

PRESSURE VESSEL DESIGN
ASME certified stainless steel heat exchanger*  
ASME Section IV-certified, “H” Stamp  
MOWP 160 PSI & max temp 210°F  
Ten Year limited heat exchanger warranty

COMBUSTION DESIGN
Stainless steel mesh pre-mix burner  
Low NOx emissions (<20 ppm); SCAQMD Compliant  
Full modulation, 5:1 turndown  
Natural or LP gas  
4” wc to 14” wc inlet gas pressure  
Direct spark ignition system  
Zero governor gas valve  
Variable speed combustion blower  
Air proving switch  
High altitude available, please consult factory

VESTING
3-in-1 vent connector*  
- CPVC, polypropylene or stainless steel  
- Combustion analyzer test port  
PVC vent kit:  
- 30” CPVC pipe, schedule 40  
- 90° elbows, schedule 80  
- (2) qty vent terminals w/ redont screens  
Direct vent – horizontal or vertical (Cat. IV)  
Air intake – room air capable (Cat. IV)  

BOILER EQUIPMENT
Concert Boiler Control™  
High limit w/auto reset temperature control  
High limit w/ manual reset safety temperature control  
Water flow switch

Apex Optional Equipment

Hydraulic kit - boiler pump, CSD-1 kit, low water cutoff, and condensate neutralizer  
Eco Propel™ variable speed pump  
Supply & return water temperature sensors  
Flue gas temperature sensor  
Outdoor air temperature sensor  
Air vent valve  
Boiler drain valve  
Condensate trap  
Stacking boiler brackets  
Pent insulation

ELECTRICAL DESIGN
High voltage printed circuit board (PCB)  
120 VAC / 60 Hz / 1-phase power supply  
Three sets of pump contacts  
PVC fused connections  
Low Voltage Printed Circuit Board (PCB)  
24 VAC enable/disable sensor contacts  
24 VAC DHW demand contacts  
24 VAC Low water cutoff contacts  
24 VAC proving switch or auto reset external limit contacts  
24 VAC manual reset external limit contacts  
24 VAC lockout alarm contacts  
24 VAC EnvironCom thermostat contacts  
24 VAC flow switch contacts  
5 VDC remote header sensor contacts  
5 VDC boiler remote sensor contacts  
5 VDC DFW tank sensor contacts  
5 VDC outdoor air sensor contacts  
5 VDC peer-to-peer communication contacts  
5 VDC energy management interface contacts  
5 VDC remote 4-20mA contacts  
RJ45 dual ports for peer-to-peer or ModBus communications

Concert Boiler Control Options

Communications gateway - BACnet, LonWorks, Metasys N2 or ModBus TCP/IP compatible  
Wireless outdoor air temperature kit  
0-10v signal converter  

Specifications, Dimensions, & Ratings

<table>
<thead>
<tr>
<th>MODEL</th>
<th>INPUT MIN. (MBH)</th>
<th>INPUT MAX. (MBH)</th>
<th>GROSS OUTPUT (MBH)</th>
<th>THERMAL EFFICIENCY %</th>
<th>&quot;A&quot; LENGTH (IN)</th>
<th>&quot;B&quot; HEIGHT (IN)</th>
<th>&quot;C&quot; VENT EQUIV. LENGTH (FT)</th>
<th>&quot;D&quot; AIR INTAKE EQUIV. LENGTH (FT)</th>
<th>APPROX. SHIPPING WEIGHT (LBS)</th>
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</table>

Energy efficiency enhancer  
- Anti-cycling technology  
- Multiple boiler base load common rate  
- Outdoor air temperature reset curve  
- Warm weather shutdown  
- Boost temperature & time  
- Ramp delay  
- Over-temperature safeguarding  
- Self-guiding diagnostics  
- Identifies fault  
- Describes possible problems  
- Provides corrective actions  

Time/Date stamp on alarms and lockouts*  
Unmatched archives  
- Historical trends - collects up to 4 months of data  
- Event History - up to 3,000 alarms, lockouts, and cycle & run times  
- Cycle & run time - boilers & pumps  
- Resettable  

Domestic hot water priority  
- DHW tank piped with priority in the boiler loop  
- DHW tank piped as a zone in the system with the pumps controlled by the Concert control  

Other features  
- Factory default settings*  
- Three level password security  
- Frost protection  
- Sensor monitoring and control  
- Low water flow safety control & indication  
- Proporation integral derivative (PID) parameters for central heat, DHW, sequencer and fan  
- Built-in brown-out protection  

* Unique to Thermal Solutions

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